REMARKS

In the Office Action, the Examiner rejected the claims under 35 USC §103. The claims have been amended to correct typographical errors and to further clarify the subject matter regarded as the invention. Claims 2, 11, 24 and 38 have been cancelled. Claims 1, 3-9, 12-23, 25-37, and 39-57 remain pending. A terminal disclaimer is submitted herewith in response to the double patenting rejection. The rejections are fully traversed below.

Reconsideration of the application is respectfully requested based on the following remarks.

REJECTION OF CLAIMS UNDER 35 USC §103

In the Office Action, the Examiner rejected claims 1-9 and 11-57 under 35 USC §103 as being unpatentable over La Porta, U.S. Patent No. 6,434,134, ('La Porta' hereinafter) in view of Ahmed et al, U.S. Patent No. 6,160,804, ('Ahmed' hereinafter). This rejection is fully traversed below.

Various embodiments of the claimed invention support intra-agent mobility. In accordance with one embodiment, this is accomplished by supporting a Home Agent and a Foreign Agent in a single router, enabling the mobile node supported by the Home Agent of the router to roam to the Foreign Agent of the router. In accordance with various embodiments of the invention, this may be enabled by implementing a mobility binding table such, a visitor table, and/or a routing table, which may specify a physical interface on the router rather than the conventional tunnel interface. Neither of the references, separately or in combination, discloses or suggests the claimed invention.

La Porta discloses a conventional system in which Foreign Agents and Home Agents operate as separate routers. The Examiner admits that "La Porta fails to explicitly teach of disclosing a binding table, which includes an entry associated with at least one mobile node that has registered with a Home Agent of the router and the entry identifies a care-of address associated with the at least one mobile node and a visitor table, which includes the list of addresses of all mobile nodes being serviced by a Foreign Agent of the router and mobile nodes including the at least one mobile node that has registered with the Home Agent of the router, within a router." The Examiner seeks to cure the deficiencies of La Porta with Ahmed.

Ahmed discloses location management techniques that include tracking and/or locating mobile stations within the system. See Abstract. More particularly, Home Location Registers (HLRs) and Visitor Location Registers (VLRs) are used to track the locations of individual mobile hosts. Each mobile station is assigned a Home Location Register (HLR). A HLR maintains the location of a mobile host through the network node it is currently attached to. If a mobile host moves to another network node, it sends a location update message to its HLR. See col. 13, lines 1-51. In addition, each network node also maintains a VLR that records information on mobile hosts that are within its coverage area and have registered with it. See col. 14, lines 48-56.

While Ahmed discloses location management techniques using VLRs and HRLs, Ahmed fails to disclose or suggest intra-agent mobility. More particularly, Ahmed fails to disclose or suggest Home Agent and Foreign Agent functionality within a single router to support intra-agent mobility. Rather, Ahmed implies that a HLR of one network node interacts with a VLR of another, separate network node. Thus, the cited art, taken separately or in combination, neither discloses nor suggests each of the elements of pending claims 1 and 9.

The Examiner notes that "La Porta also teaches in columns 4-6 of route optimization extension that provides a means for the correspondent node to cache a binding associated with the mobile device and then send packets directly to the care-of address indicated in that binding, thereby bypassing the mobile device's home agent." Thus, Applicant respectfully asserts that La Porta teaches away from the claimed invention, which requires that packets be intercepted by the home agent, as claimed.

In addition, it is important to note that col. 11, lines 42-67 of Ahmed disclose subnetwork layer addressing that specifically identifies an interface identifier. More particularly, Ahmed discloses that "the interface ID portion of the address is used to identify the interface within the

network node that the packet is being directed to." Thus, Ahmed requires that the interface be provided in the address to which a packet is directed to. Accordingly, Ahmed teaches away from enabling packets to be directed to a physical interface without identifying the interface in the packets.

It is also important to note that Ahmed fails to disclose or suggest intra-agent mobility where a Home Agent forwards a packet that is not addressed to a particular interface to forward packets to a Foreign Agent via a particular physical interface. In fact, Home Agents normally forward packets to a Foreign Agent by forwarding packets to a care-of address. Thus, the prior art teaches away from a Home Agent of a router forwarding packets to a Foreign Agent of the router by transmitting those packets to a physical interface of the router.

With respect to claims 26, 30-32, 44-46, 50, 54, as noted by the Examiner, the Examiner again seeks to cure the deficiencies of La Porta with Ahmed. The Examiner cites various portions of Ahmed, including sections corresponding to FIGs. 5A-5B and FIGs. 6A-6B. However, these cited portions neither disclose nor suggest intra-agent mobility in any manner. It is important to note that these portions of Ahmed do not relate to processing a registration request packet to determine whether the router includes the Home Agent with which the mobile node is registering and the Foreign Agent the mobile node is visiting. Rather, these sections merely relate to supporting communication between a mobile node and a correspondent node. For instance, col. 15, line 27 – col. 16, line 17 discloses providing the SNLA of the correspondent node to the initiating mobile, enabling the mobile node to send packets directly to the correspondent node using the SNLA. This is accomplished by looking up a subnetwork layer address. In other words, a physical interface must be identified in the subnetwork layer address of a packet that is transmitted. The subnetwork layer address may be obtained by sending a look up message directly to the HLR of Ahmed, which sends the subnetwork layer address back to the mobile node, as shown at 512 of FIG. 5A. The look up message enables a mobile node to

communicate directly with a correspondent mobile node. The look up message is not a registration request message. Since the cited portions of Ahmed neither disclose nor suggest performing Mobile IP registration in the manner claimed, Applicant respectfully asserts that the combination of the cited references would fail to operate as claimed in claim 26.

With respect to independent claims 19 and 22, as amended, intra-agent mobility is supported by implementing a mobility binding table such as that recited in claim 22 and/or a routing table such as that recited in claim 19, which specify a physical interface on the router rather than the conventional tunnel interface. Neither of the cited references discloses or suggests specifying a physical interface rather than the conventional tunnel interface in a mobility binding table, a visitor table, or a routing table, where the physical interface is not a part of an address. In fact, because the cited references fail to disclose or suggest intra-agent mobility, there would be no advantage to specifying a physical interface on the router. As such, the cited references, separately or in combination, fail to teach the advantages of specifying a physical interface rather than a tunnel interface.

With respect to claims 3, 6, 12, 13, 16, 38, and 41-43, the Examiner cites La Porta. However, Applicant respectfully submits that La Porta fails to disclose or suggest the specification of a physical interface in the manner claimed, or the advantages thereof. More particularly, La Porta fails to disclose or suggest the specification of a physical interface on a router to support intra-agent mobility within the router.

Similarly, with respect to claims 4, 7, 8, 14, 17, 18, 20, 23, 27, 28, 34, 36, 39, 40, 47, 48, 51, 52, 55, and 56, the Examiner asserts that Ahmed clearly suggests that registration is performed without a tunnel interface. However, Applicant was unable to find a specific portion of Ahmed that indicates that a tunnel interface is not specified.

The dependent claims depend from one of the independent claims and are therefore patentable over the cited art for at least the same reasons. However, the dependent claims recite additional limitations that further distinguish them from the cited references. Hence, it is submitted that the dependent claims are patentable over the cited art. The additional limitations recited in the independent claims or the dependent claims are not further discussed as the above discussed limitations are clearly sufficient to distinguish the claimed invention from the cited art. Thus, it is respectfully requested that the Examiner withdraw the rejection of the claims under 35 USC §103(a).

If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388 (Order No. CISCP091C1).

Respectfully submitted,

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